Amendments to the Claims

Listing of claims:

1. (Currently Amended) A method for the analysis of a target sequence in a sample, said method comprising:

a. contacting the sample with at least one pair of probes (Probe A and Probe B),

b. hybridizing Probe A and Probe B to the sample under hybridization conditions in which the desired degree of discrimination is achieved for an accurate result, wherein:

i) Probe A comprises a nucleotide sequence, which hybridizes to both a target nucleotide sequence of interest and to a nucleotide sequence not of interest ~~region of both wanted and unwanted DNA or RNA~~ and is labeled with a first-fluorophore; and

ii) Probe B comprises a nucleotide sequence which hybridizes to ~~the~~ a ~~target region of unwanted DNA or RNA~~ nucleotide sequence not of interest adjacent to the ~~target region~~ hybridization of Probe A and is labeled with a quencher~~.~~;

~~b~~c. detecting~~, identifying or quantitating~~ the hybridization of Probe A ~~to the target sequence, under suitable hybridization conditions~~, wherein the fluorescence generated from the hybridization of Probe A to the nucleotide sequence not of interest ~~to unwanted DNA or RNA~~ is quenched by hybridization of Probe B, and

d. correlating ~~wherein the~~ a presence or amount of target sequence of interest ~~wanted DNA or RNA present~~ in the sample ~~can be positively correlated~~ with ~~the~~ a fluorescence of the fluorophore of Probe A, wherein the detection of fluorophore of Probe A is an indication of the presence of target sequence of interest.

2. (Original) The method of claim 2, where the method is performed by fluorescence in situ hybridization.

3. (Original) The method of claim 1, wherein Probe A and Probe B are high affinity probes.

4. (Previously Presented) The method of claim 1, wherein Probe A and Probe B are peptide nucleic acid (PNA) probes.

5. (Original) The method of claim 1, wherein one of more of the probes has a probing nucleobase sequence of 11-16 subunits in length.

6. (Currently Amended) The method of claim 1, wherein Probe A comprises the following nucleotide sequence: GCT-TCT-CGT-CCG-TTC (SEQ ID NO: 1).

7. (Currently Amended) The method of claim 1 or 6, wherein Probe B comprises the following nucleotide sequence: ACT-TCA-AAG-GAG-CAA (SEQ ID NO: 2).

8. (Currently Amended) The method of claim 1, wherein Probe A consists essentially of the following nucleotide sequence: GCT-TCT-CGT-CCG-TTC (SEQ ID NO: 1) and the fluorophore.

9. (Currently Amended) The method of claim 1 or 6, wherein Probe B consists essentially of the following nucleotide sequence: ACT-TCA-AAG-GAG-CAA (SEQ ID NO: 2) and the quencher.

10. (Currently Amended) The method of claim 1, wherein Probe A has the following nucleotide sequence: GCT-TCT-CGT-CCG-TTC (SEQ ID NO: 1).

11. (Currently Amended) The method of claim 1, wherein Probe B has the following nucleotide sequence: ACT-TCA-AAG-GAG-CAA (SEQ ID NO: 2).

12. (Currently Amended) The method of claim 1, wherein Probe A is labeled with the fluorophore at ~~the~~ a probe terminus closest to a ~~the binding~~ hybridization site of Probe B, and Probe B is labeled with a quencher at ~~the~~ a probe terminus closest to a ~~the binding~~ hybridization site of Probe A.

13. (Previously Presented) The method of claim 1 or 12 wherein Probes A and B are labeled internally.

14. (Currently Amended) The method of claim 1, wherein Probe B ~~is~~ further comprises a ~~labeled with~~ a fluorophore at ~~the~~ an opposite end from the quencher and wherein ~~which~~ the fluorophore ~~has~~ comprises a different emission spectrum than the fluorophore o~~n~~f Probe A.

15. (Currently Amended) The method of claim 1, wherein, upon hybridization, ~~the two PNA~~ probes A and B are separated by a distance of between from about one to about five nucleotide bases.

16. (Original) The method of claim 1, wherein the target sequence is obtained from a cell or tissue.

17. (Original) The method of claim 16, wherein the cell or tissue has been manipulated to preserve the target sequence therein.

18. (Original) The method of claim 17, wherein the manipulation includes fixation, freezing or desiccation.

19. (Original) The method of claim 1, wherein step (b) of the method detects, identifies, or quantitates the presence or amount of at least one species of a microorganism in the sample.

20. (Original) The method of claim 19 wherein the target sequence was isolated from a microorganism exposed to at least one antimicrobial agent and the presence of amount of wanted DNA or RNA is taken to be indicative of an effect of the antimicrobial agent on the microorganism.

21. (Original) The method of claim 1, wherein the detection, identification or quantitation step is indicative of a condition of medical interest.

22 – 38. (Cancelled)

39. (Currently Amended) The method of claim 1, wherein the hybridization of Probe B increases the specificity of an analysis of a target nucleotide sequence of interest ~~for the presence or absence of the wanted DNA or RNA sequence~~.